

WHAT IS CLAIMED IS:

1. A test access point structure on a printed circuit board, comprising:  
2 a trace printed on a dielectric;  
a solder mask characterized by a solder mask thickness and layered  
4 over said trace, said solder mask having a hole exposing a portion of said  
trace at a test access point location; and  
6 a solder bead soldered to said exposed portion of said trace in said  
hole of said solder mask, said solder bead projecting through said hole and  
8 having a solder bead thickness greater than said solder mask thickness.

2. A test access point in accordance with claim 1, wherein:  
2 said trace is characterized by a substantially constant trace width  
leading up to said test access point location and a narrower trace width that  
4 is narrower than said substantially constant trace width at said test access  
point location.

3. A test access point structure on a printed circuit board, comprising:  
2 a trace printed along an x-y plane in an x-, y-, z-coordinate system of  
a dielectric, said trace generally characterized by a trace thickness along a z  
4 axis perpendicular to an x-y plane of said dielectric;  
a test access point structure conductively connected to said trace at a  
6 test access point, said test access point structure projecting along a z axis in  
an x-, y-, z-coordinate system above an exposed surface of said printed  
8 circuit board to be accessible for electrical probing by an external device.

4. A test access point in accordance with claim 3, wherein said trace  
2 is characterized by a substantially constant trace width leading up to said  
test access point and a narrower trace width that is narrower than said  
4 substantially constant trace width at said test access point.

5. A test access point in accordance with claim 3, wherein said test  
2 access point comprises a solder bead.

2           6. A test access point in accordance with claim 5, wherein said trace  
is characterized by a substantially constant trace width leading up to said  
test access point and a narrower trace width that is narrower than said  
4           substantially constant trace width at said test access point.

2           7. A test access point in accordance with claim 3, wherein said test  
access point is formed integral to said trace and characterized by an  
increase in thickness at said test access point.

2           8. A test access point in accordance with claim 7, wherein said trace  
is characterized by a substantially constant trace width leading up to said  
test access point and a narrower trace width that is narrower than said  
4           substantially constant trace width at said test access point.

2           9. A test access point in accordance with claim 3, further comprising:  
a solder mask layered over said trace, said solder mask having a hole  
exposing said test access point structure, wherein said test access point  
4           structure projects along said z axis of said x-, y-, z-coordinate system above  
an exposed surface of said solder mask on said printed circuit board to be  
6           accessible for electrical probing by said external device.

2           10. A test access point in accordance with claim 9, wherein said test  
access point comprises a solder bead/bump.

2           11. A test access point in accordance with claim 10, wherein said  
trace is characterized by a substantially constant trace width leading up to  
said test access point and a narrower trace width that is narrower than said  
4           substantially constant trace width at said test access point.

2           12. A test access point in accordance with claim 9, wherein said test  
access point is formed integral to said trace and characterized by an  
increase in thickness at said test access point.

13. A test access point in accordance with claim 12, wherein said  
2 trace is characterized by a substantially constant trace width leading up to  
said test access point and a narrower trace width that is narrower than said  
4 substantially constant trace width at said test access point.

14. A method for implementing a test access point structure for a  
2 printed circuit board, said method comprising:  
printing a trace along an x-y plane in an x-, y-, z-coordinate system on  
4 a dielectric, said trace generally characterized by a trace thickness along a z  
axis perpendicular to an x-y plane of said dielectric;  
6 depositing a solder mask over said trace, said solder mask having a  
hole exposing a portion of said trace at a location for a test access point,  
8 said solder mask characterized by a constant thickness; and  
conductively connecting a test access point structure to said exposed  
10 portion of said trace in said hole of said solder mask, said test access point  
structure projecting above an exposed surface of said printed circuit board to  
12 be accessible for electrical probing by an external device.

15. A method in accordance with claim 14, further comprising:  
2 narrowing a width of said trace at said test access point.

16. A method in accordance with claim 15, wherein:  
2 said method of conductively connecting a test access point structure  
to said exposed portion of said trace in said hole of said solder mask  
4 comprises:  
filling said hole with solder paste, said solder paste comprising solder  
6 and flux; and  
melting said solder paste to burn off said flux and to cause said solder  
8 to retract from walls of said hole to form a solder bead that projects above  
said walls of said hole.

17. A method in accordance with claim 14, wherein:

2           said method of conductively connecting a test access point structure  
to said exposed portion of said trace in said hole of said solder mask  
4 comprises:  
            filling said hole with solder paste, said solder paste comprising solder  
6 and flux; and  
            melting said solder paste to burn off said flux and to cause said solder  
8 to retract from walls of said hole to form a solder bead that projects above  
said walls of said hole.

18. A method for implementing a test access point structure for a  
2 printed circuit board, said method comprising:  
            determining a location of a test access point along a trace of said  
4 printed circuit board;  
            applying said trace along an x-y plane in an x-, y-, z-coordinate  
6 system on a dielectric of said printed circuit board, said trace generally  
characterized by a substantially constant trace thickness along a z axis of  
8 said an x-, y-, z-coordinate system wherein said trace thickness is increased  
at said test access point location to form a test access point structure that  
10 projects above an exposed surface of said printed circuit board to be  
accessible for electrical probing by an external device.

19. A method in accordance with claim 18, further comprising:  
2           narrowing a width of said trace at said test access point.

20. A method for implementing a test access point structure on a  
2 printed circuit board, said method comprising:  
            obtaining a fixture probe location of a fixture probe in an x-y plane of  
4 an x-, y-, z-coordinate system of a test fixture;  
            determining a corresponding test access point location in an x-y plane  
6 of an x-, y-, z-coordinate system of said printed circuit board that  
corresponds to said fixture probe location when said printed circuit board is  
8 mounted in said test fixture;  
            printing a trace on a dielectric of said printed circuit board, said trace  
10 printed along said x-y plane of said printed circuit board and passing through

said test access point location and generally characterized by a trace  
12 thickness along a z axis perpendicular to said x-y plane of said printed circuit  
board;  
14         conductively connecting a test access point structure to said trace at  
said test access point location, said test access point structure projecting  
16 above an exposed surface of said printed circuit board to be accessible for  
electrical probing by said fixture probe.

22. A method in accordance with claim 21, wherein said step of  
2         conductively connecting a test access point structure to said trace at said  
test access point location comprises:  
4         increasing a thickness of said trace at said tap location.

23. A method in accordance with claim 22, comprising:  
2         depositing one or more printed circuit board layers over said trace,  
said one or more printed circuit board layers each having a hole exposing  
4         said trace at said test access point location.

24. A method in accordance with claim 21, wherein said step of  
2         conductively connecting a test access point structure to said trace at said  
test access point location comprises:  
4         attaching a solder bump to said trace at said tap location.

25. A method in accordance with claim 24, comprising:  
2         depositing one or more printed circuit board layers over said trace,  
said one or more printed circuit board layers each having a hole exposing  
4         said trace at said test access point location prior to attaching said solder  
bump to said trace at said tap location.